INSTRUMENTS AND EXPERIMENTAL TECHNIQUES
Volume 23, Numbers 1-6, 1980
(A translation of Pribory i Tekhnika Éksperimenta)

Volume 23, Number 1, Part 1 January-February, 1980

	Engl.	Russ.
Generation of High-Energy Electron Beams of Large Cross Sections (Review) — S. P. Bugaev, Yu. E. Kreindel', and P. M. Shchanin	1	7
NUCLEAR EXPERIMENTAL TECHNIQUES		
System for Slow Discharge of a Betatron Electron Beam — Yu. V. Kuznetsov, E. V. Lazutin, Yu. A. Novikov, and I. M. Piskarev	18	25
Alignment of Directions of Bremsstrahlung and Electron Radiations from a Betatron — V. V. Kashkovskii	21	28
Injector for a Betatron Based on an Impregnated Cathode — V. V. Varlamov, B. S. Ishkhanov, B. A. Nadtochii, I. M. Piskarev, and S. P. Rakitin	23	30
Radiation Effects and Acceptable Particle Losses in High-Current Accelerators to 50 MeV — A. A. Drozdovskii	26	32
Admissible Inhomogeneity of Resistance of an Electrically Conducting Covering of an Acceleration Tube — V. K. Gagen-Torn and I. E. Reutskaya	31	37
Improvement of Acceleration of Heavy Ions by the ÉGP-10-1 Tandem Generator — M. Friedrichs and R. Grünzel	33	39
Influence of Cathode Materials on Discharge Parameters and the Yield of Multiply Charged Ions — A. S. Pasyuk, V. B. Kutner, and Yu. P. Tret'yakov	36	41
Effective-Thickness Determination for a $Ba^{113m}SnO_3$ Source — V. A. Varnek	39	44
A System for the Automatic Determination of the Tracks of Charged Particles in a Magnetic Field — A. Z. Babayan and A. R. Tumanyan	40	45
Quadrupole Lens with Poles of Implicit Form Based on Permanent Magnets — A. N. Gerbert, S. B. Mukho, Ya. D. Rabinovich, and V. S. Skachkov	44	49
Automated Spectrometer for Angular Correlations of Electron–Positron Annihilation with Programmable Multicycle Algorithm — M. N. Svetlov and Yu. P. Kocherga	47	52
Highly Accurate Spectrometer for Muon Experiments — A. I. Klimov, A. E. Meleshko, B. A. Nikol'skii, and V. I. Selivanov	51	56
Liquid Argon Compton γ Spectrometer — A. S. Barabash, A. A. Golubev, and O. V. Kazachenko	55	60
A Possible Method of Recording Small Changes in the Energy of Ultracold Neutrons — Yu. N. Pokotilovskii, A. D. Stoika, and I. G. Shelkova	58	62
Wire Spark Chamber with Additional Electrode — V. M. Berezin, E. T. Bogdanov, M. E. Vishnevskii, M. G. Vlasova, N. D. Galanina, É. T. Gedvillo, N. P. Dobrovol'skaya, A. M. Lipkin, V. N. Markizov, V. V. Memelov, V. A. Murysov, A. Ya. Ostapchuk, F. A. Pavlovskii, V. A. Sadykov, Yu. A. Semenov, E. I. Tarkovskii, N. A. Khaldeeva, and V. I. Chistilin	61	64
Ultrasonic Cleaning of Wire-Chamber Electrodes — V. A. Krasnov, A. B. Kurepin, K. O. Oganesyan, S. Yu. Porokhovoi, V I. Razin, and Sh. G. Shamsutdinov	63	67
Charged-Particle Energy Measurement with a Layered Semiconductor Device — Yu. K. Akimov, M. G. Gornov, Yu. B. Gurov, G. A. Krykanova, P. V. Morokhov, K. O. Oganesyan, B. P. Osipenko, V. A. Pechkurov, A. P. Pichugin, A. K. Ponosov, S. Yu. Porokhovoi, and F. M. Sergeev	65	69

	Engl.	Russ.
Inversion Mechanism for Formation of Input "Window" of Silicon Surface-Barrier Nuclear Radiation Detectors — B. M. Golovin, V. F. Kushniruk, and L. A. Permyakova	70	74
Time Resolution of Pulsed Cerenkov γ Detectors — G. D. Belousov, V. L. Buryakov, and O. V. Kozlov	74	77
EXPERIMENTAL APPLICATIONS OF COMPUTER TECHNOLOGY		
Organization of Data Collection in Experiments on Small-Angle pp, pd, and pHe Scattering (Electronic Apparatus) — B. A. Morozov, P. V. Nomokonov, and V. A. Smirnov	77	81
Fast Universal Digital Coder for Processor Event Sampling Systems — S. G. Basiladze and A. N. Parfenov	84	88
Unit for Data Transmission along Two-Lead Line in CAMAC Standard — A. I. Vasil'ev, Yu. A. Karzhavin, and N. I. Moseiko	89	93
A Writing and Erasing Unit for a Liquid-Crystal Controlled Transparency — P. I. Kolennikov and A. V. Guk	92	96
A Two-Channel Digitizing Recorder for Signals of Microsecond Duration — A. N. Kasperovich, O. M. Mantush, and Yu. V. Shalaginov.	94	98
Generator of Pulses of Nanosecond Duration and Precise Amplitude with Digital Control in Standard CAMAC — S. G. Basiladze and Nguen Kwang Min	98	102
ELECTRONICS AND RADIO ENGINEERING		
Method for Analyzing Distortions of Amplitude Spectra Due to Pulse Overlapping in Spectrometer Channel — N. G. Volkov, V. V. Sin'kov, and S. N. Fedotov	102	105
Commutator with Buffer Storage Device for Use with AI-4096 Analyzer — V. N. Belogurov, V. A. Bylinkin, V. F. Vasil'ev, and P. E. Sen'kov	105	108
Analog Storage Device with Matching to Amplitude of Input Signal — V. G. Galalu and V. S. Pereyaslov	108	111
Synthesis of Functional Relations among Voltages Using an Analog Signal Converter — V. I. Voronin	110	112
Waveform Synthesis at Infralow Frequencies with an Analog Signal Converter — V. I. Voronin	112	114
A Low-Inductance Generator of Pulsed Voltage at 1 MV — G. I. Koba, Yu. V. Koba, I. N. Slivkov, A. D. Sukhov, and É. Z. Tarumov	115	117
A 20-Channel Generator of High-Voltage Pulses — P. S. Anan'in and A. P. Kashirin	119	121
A Generator of Current Pulses of Adjustable Shape and Duration for Supplying Gas-Discharge Tubes — S. A. Vitsinskii, V. I. Kulakov, and V. M. Opre	121	123
A Divider for Measuring Nanosecond EHT Pulses — Yu. M. Arkatov, P. I. Vatset, V. I. Voloshchuk, E. A. Gavrilichev, V. A. Zolenko, and I. M. Prokhorets	123	125
An Adjustable Shaper for the Envelope of a Radiofrequency Pulse — Yu. A. Azarnyi and E. I. Kachanov	125	126
A Simple Generator of a Linearly Varying Voltage — A. A. Zagrubskii, V. A. Lobtsyus, and V. V. Petrov	127	128
Generator for Sweeping of Magnetic Field in Broad-Line NMR Spectrometers — A. G. Khandozhko, V. N. Ermakov, and E. I. Slyn'ko	128	129
Operational Sweep Amplifier with Periodic Stabilization of Zero Level — L. I. Tsytovich and B. A. Petrenko	131	132
Low-Noise Selective Amplifier — L. I. Volgin, D. G. Levchenko, A. I. Zarukin, A. I. Bagimov, and A. A. Vyazovkin	133	134
Temperature-Compensated Logarithmic Amplifier —A. E. Érglis and U. V. Yanson	136	137
Universal Integrated Circuit Decade Counter — V. S. Kotov and L. Ya. Églitis	137	138

Volume 23, Number 1, Part 2 January-February, 1980

	Engl.	Russ.
ELECTRONICS AND RADIO ENGINEERING		
Logarithmic Converter — V. S. Kotov.	141	141

Functional Converter for a Sign Correlator — A. T. Kotov and Yu. L. Krasil'nikov 144 144
Reversible Transistorized Filter — A. I. Nyva and I. É. Ranne 146 145
Spline-Interpolating Filter — B. V. Chuvykin 148 147
Light Control-Pulse Detector for the Current Switches in a High-Voltage Pulse Generator — V. N. Eliseev, N. A. Ivanov, and V. F. Kondakov . . 150 149
Optoelectronic Image Discrimination Apparatus by Optical Density Levels — É. M. Kurashov. 154 152
Use of Scanistors in Diagnostics of Moving Plasma — K. A. Zhdanov, V. G. Zatsepin, B. V. Lazarev, and É. A. Tishchenko 158 155
Polarization-Frequency Method for Measuring Dielectric Constant of Film Materials — A. A. Kalinkevich 162 159
Attachment to Automatic Panoramic Devices Measuring Standing Wave Coefficients and Losses — E. F. Zamora, I. N. Prudius, M. G. Romanyuk, N. N. Gnatchuk, and N. I. Buk 165 161
System for Moving a Mössbauer Source Based on Integrated Circuits — Yu. F. Babikova, N. S. Kolpakov, K. E. Nilov, and M. N. Uspenskii . 167 163
Monoaxial Compression of a Crystal in a Low-Temperature, Millimeter-Range EPR Spectrometer — S. N. Lukin and G. A. Tsintsadze 170 166
Time-Delay Measuring Circuit for a Wave Pulse Used in Acoustic Experiments V. P. Voronov, V. M. Malyshev, and V. M. Merkulov 172 168
Time-Interval Identifier — V. D. Pysin, V. V. Kitaev, V. I. Afanas'ev, and V. A. Serikov 175 171
Stabilized High-Voltage Supply — L. S. Poleshchuk and M. D. Pritychenko. . 179 174
Current Stabilizer for High-Resistance Magnets — B. V. Gurylev, B. A. Bespalov-Korotkevich, and S. N. Kisel'nikova. 181 176
Control System for a Three-Phase Bridge Rectifier — Yu. A. Ryabichev and A. N. Smirnov 183 178

GENERAL EXPERIMENTAL TECHNIQUES

Analog Device for Determining Secondary-Emission Coefficients — S. Ya. Lebedev, V. V. Oznobishin, V. V. Bondarenko, A. N. Efeshin, and V. S. Parshutin 186 180
Intense Ion-Beam Sources with Compensation of Positive Space Charge inside Acceleration Gap — Yu. P. Maishev 189 183
Ion Source to an MI-1305 Mass Spectrometer for Measurements by the Field-Desorption Method — V. A. Pokrovskii and A. M. Glukhoi. 193 187
Ionizer for Mass-Spectrometric Analysis of the Neutral Component of a Plasma — V. Ya. Chernyak 196 190
Use of Microchannel Plates to Detect Ions — N. V. Nikonenkov and A. N. Kudryavtsev 198 191
Characteristics of Pulse-Operated Microchannel Plates — N. B. Leonov, A. M. Tyutikov, and N. A. Shishatskii 200 193
Effect of Temperature on Photomutiplier Single-Electron Characteristics — S. S. Vetokhin and I. R. Gulakov. 203 196
Effect of External Factors on Establishment of Photomultiplier Operating Mode — S. S. Vetokhin, I. R. Gulakov, and Yu. V. Pislyak 206 198
High-Pressure Systems for Research on the Mössbauer Effect at Low Temperatures — G. N. Stepanov. 208 200
High-Pressure Low-Temperature Optical Chamber — V. A. Voloshin and A. I. Kas'yanov 211 203
Measurement of the Velocity of Motion of Domain Boundaries by a Magneto-optical Method — M. V. Chetkin, A. N. Shalygin, and A. de la Kampa. . 215 207
Amplitude-Time Distortion in a Kinetic Spectrophotometer — E. M. Shirshov. 218 210
Equipment for Measuring the Effective Lifetimes of Levels Excited by High-Energy Charged Particles — V. S. Il'yashenko and A. I. Mis'kevich 220 212
Simple System for Frequency Stabilization of a Gas Laser — V. G. Gudelev and V. M. Yasinskii. 223 215
Excitation System for Electric Discharge Excimer Lasers — M. N. Kostin, V. F. Tarasenko, and A. I. Fedorov 226 218
Multistage Gun in an Electron Microscope — P. A. Stoyanov, I. S. Renskii, V. V. Moseev, L. A. Chalbasheva, and A. E. Vedeneev. 229 220

	Engl.	Russ.
Camera for X-Ray Studies in Static Magnetic Fields up to 50 kOe — É. A. Zavadskii, V. I. Kamenev, B. Ya. Sinel'nikov, and V. V. Permyakov	233	224
Registration of X-Ray Spectra in Spectroscopy of Excitation Potentials with the Aid of Microchannel Plates — V. N. Smirnov, and L. P. Kozharinov	235	226
Cadmium Telluride Detectors in X-Ray Fluorescence Analysis — V. S. Ponomarev, V. A. Meier, O. A. Matveev, A. Kh. Khusainov, V. D. Kulikov, and A. A. Tomasov	237	228
Adjustment Indicator for the Mineral-3 Microprobe Analyzer — S. A. Efimenko, Yu. V. Polkovnikov, and A. G. Goncharov	241	232
Local Nonlinearity Monitoring for a Semiconductor in a Strong uhf Field — D. I. Bilenko, A. E. Lun'kov, and P. I. Kutsevlyak	244	235
Method for Measurement of Semiconductor Diode Current—Voltage Characteristics — V. V. Zaddé and E. A. Guseva	248	239
Measurement of Electric Fields on Both Sides of a Dielectric Plate by the Dynamic Capacitor Method — S. G. Boev and G. I. Sigaev	249	240
LABORATORY TECHNIQUES		
Small Manually Controlled High-Vacuum Valves — G. G. Baikova, V. A. Zhukova, A. N. Maleev, and A. I. Kholodov	252	243
Calibrated Hydrogen—Helium Leak — Yu. A. Goryainov, V. T. Kuz'mina, L. E. Levina, L. D. Murav'eva, and G. A. Chigirinova	254	244
Linear Pressure to Pulse Frequency Transducer — S. P. Essyak and S. G. Osipova	256	246
Miniature Thermoelectric Pressure Transducer — E. Ya. Badinter, B. K. Zalevskii, and I. G. Starush	258	248
Electromagnetic Gate Valve for Pulsed Gas Inlet to a Vacuum System — A. P. Strokach and K. N. Klochkov	260	251
Cryogenic-Vacuum Attachment for Obtaining Molecular Complexes and Performing Spectrophotometric Analysis — E. D. Radchenko, G. G. Sheina, and Yu. P. Blagoi	262	252
Cell for Studying Infrared Spectra of Adsorbed Molecules at Liquid Helium Temperatures — A. A. Tsyganenko	265	255
Attachment to IKS-14A Spectrophotometer for Registration of Temperature Dependences of Transmission and Reflection Spectra — I. V. Solov'ev	267	257
Infrared Flow Cell for Recording Spectra of Surface Compounds — V. I. Likhtenshtein, V. K. Popov, and A. V. Dobrov	269	258
Production of Patterns with Submicron Elements with the Optical System of a Microscope — A. S. Andreev, I. M. Kotelyanskii, E. N. Mirgorodskaya, and V. P. Orlov	271	260
Reconditioning the Discharge Tubes of He—Ne Lasers — A. S. Ershov, A. Yu. Kazarin, and V. G. Yakunin	273	262
Attachment to X-Ray Diffractometer for Compressibility Measurements — V. I. Kamenev, V. Yu. Kameneva, and N. A. Romanova	274	263
Manufacture of Hall Transducer Contacts — K. D. Potaenko	276	265
Noise-Immune System for Measuring the Intensity of a Beam of Charged Particles — A. K. Protasov, V. M. Rybin, and V. N. Sukhin	277	266
Low-Temperature Contacts to Gallium Arsenide — S. S. Varshava and V. V. Vainberg	279	268
Simple Cryostat for Obtaining a Temperature Down to 0.3°K — V. F. Khirinyi	281	270
Wire Resistors which Can Stand Multiple Cooling Down to Liquid Helium Temperatures — N. A. Pankratov, N. I. Narykin, and V. G. Malyarov	283	271
Influence of a Strong Magnetic Field on the Thermal emf of a Chromel—Copel Thermocouple — N. N. Sirota, V. V. Petrashko, and Yu. A. Semenenko	284	273
Vacuum Thermal Balance with Remote Transmission of the Readings for Operation in a Field of Ionizing Radiation — S. A. Pavlov, F. Ya. Frolov, A. M. Lepeshkin, and M. A. Bruk	286	274

Engl./Russ.

Volume 23, Number 2, Part 1 March-April, 1980

Spectral Scanning of the X-Ray Emission of Plasma Microsources (Review) — V. A. Boiko, S. A. Pikuz, and A. Ya. Faenov..... 291 5
Automatic Range-Switching Converters (Review) — Yu. V. Safroshkin..... 313 24

NUCLEAR EXPERIMENTAL TECHNIQUES
"Minus" Pulsed, High-Current, Nanosecond, Electron Accelerator — I. B. Dzhelepov, G. E. Gladyshev, B. T. Plachenov, B. N. Pugachev, O. S. Sirotyuk, Yu. V. Terent'ev, V. A. Rodichkin, and K. I. Finkel'shtein..... 327 38
Combined System for Stabilizing the Bremsstrahlung Intensity of a Betatron — Yu. V. Kuznetsov, Yu. A. Novikov, and I. M. Piskarev..... 330 41
Continuous 20-mA Source of Negative Hydrogen Ions with a Low Level of Beam-Current Pulsations — M. D. Gabovich, Yu. N. Kozyrev, and A. P. Naida..... 334 45
Sectioned Faraday Cylinder for Magnetized High-Current Beams — I. Z. Gleizer, Yu. P. Usov, V. I. Tsvetkov, and A. A. Shatanov..... 336 46
Distribution of Coordinates of Centers of Gravity of Electromagnetic Showers in Hodoscopic Spectrometers — N. S. Mel'nikov, E. A. Razuvaev, and V. K. Semenov..... 339 49
Spatial Errors and Resolution of Nearby Tracks during Parallel Tracking in Terms of Images on Photographic Frames — K. É. Érglis..... 343 52
Simulation of Spatial Tracking in a Large Bubble Chamber — K. É. Érglis..... 347 56
Installation for Studying Transient Processes of Resonance Interaction of Gamma Rays with Nuclei — V. K. Voitovetskii, V. V. Karmaz', I. L. Korsunskii, I. V. Naumov, A. I. Novikov, Yu. F. Pazhin, Yu. N. Pshonkin, and P. F. Samarin..... 351 59
Using Game Methods to Eliminate Overlapping Pulses in Gamma Spectrometry — M. I. Skopyuk and V. A. Shevchenko..... 355 63
Laser Velocity Calibrator for a Nuclear Gamma-Resonance Spectrometer — S. I. Reiman and K. P. Mitrofanov..... 356 66
Dependence of Light Yield of Inorganic Scintillation Detectors on Energy of Gamma and Alpha Radiation — O. P. Sobornov and I. A. Lebedev..... 361 69
Characteristics of Composite Detectors Based on Semiconducting Detectors Plus CsI(Tl) — A. A. Aleksandrov, L. S. Gatsenko, I. V. Kirsanova, V. K. Lyapidevskii, and O. P. Fedoseeva..... 364 71
Liquid-Methane Pulsed Ionization Chamber — A. S. Barabash, A. A. Golubev, O. V. Kazachenko, and B. M. Ovchinnikov..... 366 73
Detector of Transition Radiation — R. A. Astabatyan, K. R. Grigoryan, M. P. Lorikyan, and K. Zh. Markaryan..... 368 75
Selection of a Detector of Ionizing Radiation for Speed of Response — A. K. Stroikovskii, M. V. Sazhin, V. P. Dombrovskii, and V. I. Ryashchikov..... 371 77
Detection of Fission Fragments with Thin-Film, Solid-State Capacitors — Yu. P. Gangrskii, M. B. Miller, and V. K. Utenkov..... 374 79

EXPERIMENTAL APPLICATIONS OF COMPUTER ENGINEERING
System for Automatic Control of a Setup for Measuring Angular Correlations — V. N. Belyaev, V. Yu. Kovalen', B. V. Sobolev, and Yu. V. Shtotskii..... 378 83
Analog Signal Input to the "Promin'-2" Computer — V. M. Griko, V. M. Tkachev, and V. P. Khoroshilov..... 380 85
Circuit for Information Readout from Drift Chambers — V. V. Karpukhin..... 384 88

	Engl.	Russ.
Bidirectional Interface between the VT-340 Video Terminal and the "Prepamat" Paper Tape Station — Ya. M. Damatov and N. M. Nikityuk	388	91
Reading Information from the NTA-512V Analyzer to the PL-80 Tape Punch — I. I. Gainish and A. A. Teke	389	93
ELECTRONICS AND RADIO ENGINEERING		
High-Sensitivity Low-Frequency Spectrum Analyzer — G. P. Zhigal'skii and Yu. A. Tyurin	391	94
Machine Determination of Integral Characteristics of Random Processes — A. V. Blokhin	393	96
Counters and Dividers Based on Cyclic Registers with a Single Cross Connection — S. U. Klimovich and I. P. Steklova	394	97
Converter Taking Pulse Amplitudes into Time Intervals with Automatic Control — N. N. Balamatov and A. A. Sotsilenkov	397	99
Recirculation Measuring Transducer Converting Short Time Intervals into Code — N. R. Karpov	399	101
Signal Amplitude—Digital Code Converter with Double Strobing — A. N. Gil'manov and F. F. Gubaidullin	401	103
High-Voltage Step Voltage Generator — I. F. Kalinkevich and Yu. V. Maidl'	404	106
Low-Inductance Capacitor Module for Charging to 100 kV and Energy Storage Capacity 80 kJ — A. B. Andrezen, V. A. Burtsev, V. M. Vodovozov, A. A. Drozdov, and G. M. Makeev	407	109

Volume 23, Number 2, Part 2 March-April, 1980

ELECTRONICS AND RADIO ENGINEERING		
High-Speed Voltage Dumping Generator Based on Avalanche Transistors — G. G. Antonyan, M. N. Ishkhanyan, and A. V. Sinyavskii	411	113
Pulse Devices Based on Integrated Triggers — G. A. Kozin	413	114
Pulse Parameters of Thyristors in the Avalanche Mode — V. P. D'yakonov, S. I. Zienko, and Yu. I. Grushenko	417	117
High-Speed Transistor Amplifier — N. I. Turovskii and M. G. Livshits	420	119
Amplifier-Pulse Shaper Using Power MOS FETs — S. I. Zienko	422	121
Two-Step Pulse Shaper — S. I. Zienko	424	123
Amplifier for Electron Multiplier Signals — N. V. Nikonenkov	426	125
Wideband dc Amplifier — A. S. Nagaikin and A. A. Anisimov	428	127
Multichannel Nanosecond-Range Logic Circuits — S. G. Basiladze and Nguen Tkhi Sha	430	129
Superhigh-Speed Analog Switch — O. A. Arodzero, V. A. Bodyagin, A. S. Kazakov, and I. N. Matveev	433	132
Programmable Nanosecond Delay — B. Z. Movshevich	435	133
Device for Timing the Middle of a Varying Time Interval — A. I. Klimov, E. A. Meleshko, and V. I. Selivanov	437	135
Analog Device for Measuring Relative Frequency Deviation — P. A. Prokhorenkov, and A. M. Kovalev	440	137
Frequency Multiplier with Double Conversion in an Additional Generator — A. Z. Venger, V. I. Misevra, N. A. Sivozalizov, and A. M. Yakimenko	442	139
Nonlinear Bandpass Filter — Yu. V. Safroshkin	445	142
Regenerative High-Resolution NMR Spectroscopy — Yu. S. Konstantinov and A. M. Smirnov	447	143
Automatic Frequency Stabilizer for a Terahertz Backward-Wave Tube — S. P. Belov, L. I. Gershtein, V. V. Ilyakhina, A. V. Maslovskii, and V. S. Savel'ev	451	147
Precision Bipolar Voltage Stabilizer — Yu. S. Serlik and A. I. Fukel'man	454	150
Improved Dynamic Parameters of Pulsed Voltage Stabilizers from Use of Interrupted Choke Currents — L. A. Morozova and L. A. Sirotin	456	152

GENERAL EXPERIMENTAL TECHNIQUES

Experimental Study of Measurement Errors of Rarefied-Gas Pressure Transducers — P. N. Aver'yanov, I. D. Voronov, V. M. Zaikin, V. V. Pashkov, N. A. Ramzaeva, and E. V. Shevchenko 459 155

Time-Contrast Characteristic of Electrooptical Transducers — V. A. Miller, B. D. Smolkin, and B. M. Stepanov 462 158

Pulsed Light Source Based on the Z-Pinch for Microsecond Photolysis — G. I. Belogolovtsev 466 161

Polarization Photoelastic Radiation Modulator with Wavelength 10.6 μm — E. K. Galanov and G. N. Potikhonov 470 164

Broad-Band Infrared Frequency Detector and Mixer Based on a Contact of Metal—Oxide—Metal Structure — V. N. Chernyakov and V. I. Kukhtevich . . 473 166

Digital Phase-Measuring System for Counting Integral Numbers and Fractions of Bands for a Homodyne Microinterferometer — E. A. Andrushchak and V. P. Tychinskii 476 169

Device for Reversible Counting of Bands for a Homodyne Interferometer — E. A. Andrushchak and V. P. Tychinskii 481 173

Apparatus for Calorimetric Measurements of Energy Balance for Laser Radiation Interacting with Matter — B. L. Vasin, N. N. Zorev, V. N. Radaev, A. A. Rupasov, G. V. Sklizkov, A. S. Shikanov, and L. I. Shishkina 484 176

Measurement of Displacement of Laser Beam in Media with Variable Optical Thickness — V. V. Efremenko and L. N. Kornilov 487 178

Electromagnet for Fields up to 20 T — K. Troinar, Ch. Bazan, and M. Glin'ski 490 181

Quantum Magnetometer with Superconducting Transformer of Sensitivity 1 nMx — I. N. Khlyustikov and M. S. Khaikin 493 184

Pressurizer for Automatic High-Pressure Valve Chests — M. L. Shubnikov and A. A. Averkin 497 188

Pulsed X-Ray Sources — V. A. Belago, V. Ya. Budtsev, and A. S. Filippenko . . 499 189

X-Ray Tubes for Obtaining Circular Laué Diffraction Diagrams — E. A. Levikov, L. V. Levikova, V. F. Dolzhenko, and V. P. Yashin 501 191

Multichannel X-Ray Register — V. M. Murugov, V. I. Pankratov, V. N. Petrakov, and A. V. Senik 504 194

Coordinate Gas Scintillation X-Ray and UV Photon Counters— V. D. Peskov . . . 507 196

Carrier Lifetimes in $Cd_xHg_{1-x}Te$ Crystals from Photoconduction Relaxation — A. I. Vlasenko and A. V. Zubakov 510 199

LABORATORY TECHNIQUES

Actuation of an Oscilloscope by a Light Pulse — A. I. Andrushko Yu. G. Malinin, and Kh. M. Salikhov 513 202

Angle—Code Converter Using Airtight Electromagnetic Contacts — I. V. Naumov 514 202

Film Light Filters for the UV Region — A. L. Kudryavitskii, E. N. Bebyakina, G. P. Levina, and V. M. Klyuchnikov 515 203

Observation Window for High-Vacuum Chambers — V. G. Kakuberi and A. T. Fin'kov 518 206

Component for Measuring Electric Conductivity of Liquids and Gases at High Pressures and Temperatures — M. M. Korsunskii 519 207

Magnetooptical Study of Submicron Magnetic Domains at Low Temperatures — A. I. Belyaeva, A. V. Antonov, G. S. Egiazaryan, V. A. Potakova, and V. I. Silaev 522 209

Detectors for Simultaneous Magnetic Field and Temperature Measurement — I. A. Bol'shakova, S. S. Varshava, T. A. Moskovets, and V. F. Chekurin 526 212

Digital Thermometer with Electronic Temperature Regulator — V. P. Anferov and V. M. Mikhal'kov 529 215

Thermal Component for Growing Silicon Ribbons — V. P. Bereza, T. A. Ovchinnikova, and V. Yu. Turkovskii 531 216

Growth of Bismuth—Antimony Single Crystals from a Cooled Seed — V. I. Bochegov, K. G. Ivanov, and N. A. Rodionov 533 218

Fabrication of Ohmic Contacts to Stratified Single Crystals of Type $A^{III}B^{VI}$ — L. A. Demchina, Z. D. Kovalyuk, and I. V. Mintyanskii 534 219

	Engl.	Russ.
Pulsed Power Circuit for a Liquid Helium Floating Level Gauge — V. I. Makhan'kov, A. A. Mats'ko, and G. P. Shemonaev	535	220
Fabrication of Spherical Grids for an Electronograph — B. M. Zykov	536	221

Volume 23, Number 3, Part 1 May-June, 1980

Apparatus for the Investigation of Processes of Double Beta Decay (Review) — Yu. G. Zdesenko	539	5
NUCLEAR EXPERIMENTAL TECHNIQUES		
Dual Accelerators of the ÉLV Type — A. I. Grishchenko, B. M. Korabel'nikov, S. A. Kuznetsov, G. S. Krainov, N. K. Kuksanov, R. A. Salimov, and A. N. Samoilovich	556	21
Automated Monitoring of High Voltage in ÉGP-10M Accelerator — V. I. Mukhametshin, Yu. R. Chalyi, and V. A. Romanov	558	23
Diagnostics of Beam Perturbations in Linear Ion Accelerators from the Distribution of Secondary Particles — A. P. Fedotov, V. V. P'yankov, V. V. Frolov, and V. B. Khvostov	562	26
Analytic Method for Calculating Parameters of Shims for Correcting Fields from Electromagnets — A. E. Bol'shakov and L. L. Gol'din	567	30
Rod-Type Quadrupole Lenses with Permanent Magnets — V. S. Skachkov	571	34
Adjustment of Field in Magnetically Hard Quadrupole Lens with Poles of Implicit Form — V. S. Skachkov	575	37
Study of Magnetic Field of Four-Pole Magnet by the Finite Element Method — G. I. Kotenko and V. A. Karkhin	577	39
Use of a Carbon Film to Generate Beams of Secondary Particles on Proton Synchrotrons — L. L. Nemenov, Yu. A. Plis, V. M. Plotko, N. M. Tarakanov, and V. N. Chepegin	580	41
Cryogenic Hydrogen–Helium Target with a Large Aperture — L. B. Golovanov, V. L. Mazarskii, and A. P. Tsvinev	583	44
Equipment and Computer Software for Experiment on Scattering of Polarized Protons from Hydrogen and Nuclei — A. E. Buklei, N. N. Govorun, V. V. Zhurkin, I. M. Ivanchenko, V. P. Kanavets, N. N. Karpenko, L. N. Kondrat'ev, I. I. Levintov, V. I. Martynov, O. E. Mikhailov, B. V. Morozov, V. M. Nesterov, I. I. Pershin, N. N. Pomelov, L. M. Polyakova, V. V. Ryl'tsov, and T. S. Cherkalina	586	46
Allowance for Instrumental Errors in Experiments on Double Scattering of Elementary Particles — N. D. Gagunashvili, R. Ya. Zul'karneev, and Kh. Murtazaev	591	50
Profile of an Electromagnetic Shower in a Gamma-Ray Spectrometer Based on Gas-Discharge Chambers with Automatic Data Collection — N. K. Vishnevskii, A. G. Lavkin, V. G. Lapshin, N. S. Mel'nikov, and V. K. Semenov	594	53
Lead Scintillation Shower Detector — E. M. Boyakhchyan, I. A. Keropyan, and N. I. Nikitin	596	55
Study of the Process of Etching of Charged-Particle Tracks by the Conductometric Method — P. Yu. Apel' and S. P. Tret'yakova	600	58
Tests of the Operating Life of Miniature Proportional Counters — G. S. Malkiél', V. V. Ratnikov, and A. F. Titenkov	604	61
Possibility of Using Semiconductor Detectors Based on Epitaxial Gallium Arsenide in X-Ray Radiometric Analysis — S. P. Golenetskii, V. M. Zaletin, I. I. Protasov, and A. T. Dudarev	606	63

Influence of Temperature on Intrinsic Energy Resolution of NaI(Tl) Crystals — É. L. Vinograd, Yu. A. Tsirlin, and N. Yu. Gurevich..... 611 67
Efficiency of Light Collection in a Large Scintillation Counter — A. N. Alent'ev and A. A. Chaikin..... 614 70
Possibility of Using Fiber Light Guides as a Radiator of Cherenkov Radiation — E. V. Repenko and O. I. Stukov..... 617 72
Error Estimate in Measuring Dose Power of Terrigenous Gamma Radiation — É. M. Krisyuk, N. D. Vol'zhonok, I. V. Chubinskii-Nadezhdin, and V. I. Parkhomenko..... 618 74

EXPERIMENTAL APPLICATIONS OF COMPUTER ENGINEERING

Device Interfacing a Desktop Computer with an Analog Two-Coordinate Automatic Printer — A. T. Burkov..... 621 76
Parallel-Series Analog-Digital Byte Converter — G. I. Gotlib and V. Ya. Zagurskii..... 623 78
Charge-Digital Nanosecond Pulse Transducer — Yu. B. Bushnin, A. A. Denisenko, A. F. Dunaitsev, M. M. Soldatov, A. N. Sytin, and V. I. Yakimchuk..... 625 80
Study of Dynamic Errors of Nanosecond Conveyer Analog-Digital Transducer — A. P. Novitskii..... 629 83
Binary to Binary-Coded Decimal Converter for Digital Output — É. S. Belyakov..... 632 86
Three-Channel Device for Accurate Magnetic Registration of Infralow-Frequency Analog Signals — M. A. Ganapetyan..... 634 88

ELECTRONICS AND RADIO ENGINEERING

Memory Sector Selection Unit for AI-4096-3M Analyzer — I. I. Gainish and A. A. Teke..... 639 92
Control Circuit for Electroluminescence Display Unit — O. I. Nikolaichuk..... 640 93
Reading of Oscillograms of Single Fast Processes by Tracking Conversion Using a Dissector Tube — R. A. Ariskina, S. D. Fanchenko, and A. P. Tsitovich..... 643 96
Video Signal Recording with the "Élektronika L1-08" Video Tape Recorder — I. V. Peretyagin and B. I. Poronik..... 646 98
Device for Recording Form of Repeating Pulses — V. I. Mel'nikov and S. F. Rovnov..... 648 101
Pulse Duration Selector — V. V. Blatov, A. A. Chudov, and G. V. Gronova..... 650 103
High-Speed Voltage Comparator Circuit — V. K. Chepalov and N. R. Karpov..... 653 105
Pulse Sign Correlator in Nanosecond Range — Yu. P. Egorov, A. S. Petrov, B. L. Pivovarov, and V. A. Trofimov..... 654 107
Nanosecond Range Time-Amplitude Converter — N. N. Balamatov and V. Yu. Zalivako..... 657 109
Single Microcircuit Converters Converting Voltage into Pulse Repetition Period — N. Kh. Asanov..... 659 111
Logarithmic Amplitude-Time Converter of Radiation Intensity — K. S. Klempner and I. M. Cherednichenko..... 661 113
High-Power High-Frequency MOS Transistors in Pulse Circuitry — V. P. D'yakonov..... 663 115
High-Frequency Magnetothyristor Generator of Powerful Nanosecond Pulses — E. A. Gromov, A. N. Meshkov, and V. I. Shishko..... 667 118
Generator of Nanosecond Pulses with a High Repetition Frequency — N. P. Volyntsev and B. V. Galun..... 669 120
Generator of a Pair of Subnanosecond Pulses with an Adjustable Duration and Delay — A. S. Logginov and A. V. Semyanistyi..... 671 121
High-Frequency Stabilized Pulse Generator — L. S. Shchors and A. V. Shidlovskii..... 674 123
Traveling-Wave Tube and Klystron Electronic Frequency Sweeper — Ch. O. Kadzhar and S. A. Musaev..... 676 125

Volume 23, Number 3, Part 2 May-June, 1980

ELECTRONICS AND RADIO ENGINEERING

Power MOS FET Amplifier with Subnanosecond Response Time — V. P. D'yakonov and V. Yu. Smerdov 679 127

Electrometric Amplifier with Direct Coupling Based on p—n Junction Transistors — A. E. Zelenin 682 129

Digital Synchronous Detector — E. N. Kotlikov, S. N. Moshkina, and V. A. Polishchuk 683 130

Switching Synchronous Detector — V. A. Safonov and A. A. Dovgan' 685 132

Design of Resonant System of Quantum Detector — Yu. P. Popkov 686 133

Optical Microphone — V. P. Klimashin 688 135

Frequency Multiplier Based on an Avalanche-and-Transit Diode — A. Z. Venger, A. N. Ermak, and A. M. Yakimenko 691 138

Analog Squarer — V. N. Galakhov and R. Sh. Tsvyk 693 140

Device for Adjustable Delay of Analog Signals Based on MOS Transistors — B. I. Kontorovich and M. V. Klevanskaya 695 142

Formers for Quadrature Components of a Signal with Phase Doubling — V. F. Otchalko, N. N. Shtarev, and N. N. Lyapin 698 144

Modulator for Pulsed Nuclear Magnetic Resonance Spectrometer — G. E. Kibrik. 701 147

Charging Device for Small-Scale High-Current Electron Accelerator — K. A. Zheltov, A. V. Malygin, V. I. Rozov, and V. F. Shalimanov . . . 704 149

High-Voltage Adjustable dc Source — E. V. Grodzinskii and V. V. Chashchin. . 707 153

Power Source for Current Ionization Chamber — R. É. Bagdasarov, A. E. Merkulov, and V. E. Taranov 709 155

High-Power Temperature-Protected Transistor Switch for Currents to 500 A and Voltages to 100 V — E. A. Gritsevskii, I. K. Meshkovskii, and V. V. Togatov 712 158

Power System for Electromagnet in an NMR Spectrometer — O. D. Vetrov and D. A. Moskalev 715 160

Three-Phase Rectifier Circuits with Voltage Tripling — M. I. Kozlov, P. P. Vershinin, V. L. Gershenkroi, N. I. Gordienko, V. I. Goshchurenko, and Ya. V. Gershinskii 718 163

GENERAL EXPERIMENTAL TECHNIQUES

Measurement of the Energy Characteristics of a Nanosecond Electron Beam Extracted into the Air through a Foil — V. G. Shpak 720 165

Radioisotopic Manometer with a Channel Multiplier — V. N. Barkovskii, A. A. Vydrik, and V. G. Mikutskii 723 168

Mass Spectrometer with a Pulsed Position-Sensitive Ion Detector Based on Microchannel Plates — V. I. Dukhanov, A. G. Zelenkov, A. A. Kurashov, I. B. Mazurov, Yu. F. Rodionov, and I. N. Serikov. . . 726 170

Selective Recording of the Mass Spectra of Doubly Charged Ions on a Magnetic Mass Spectrometer — G. D. Tantsyrev, E. N. Nikolaev, and V. A. Saraev . 730 173

Characteristics of a Cooled shf Source of O, H, and D Atomic Beams — E. N. Evlanov and Yu. V. Lebedev 733 176

Nanosecond Electron-Optical Camera for Investigating Relativistic Electron Beams — V. A. Ganichev, E. M. Gordeev, I. N. Zaidel', P. V. Kuksov, S. D. Fanchenko, and L. F. Shuvalov 736 179

Loss in Resolving Power of Electron-Optical Converters with Electromagnetic Focusing under Prolonged Exposures — V. L. Afanas'ev and A. A. Pimonov. 740 182

Permanent-Magnet Focusing System for Electron-Optical Converters — A. A. Blokhin, L. V. Gyavgyanen, S. I. Molokovskii, and V. S. Rylov . 744 186

Setup for Adiabatic Compression of Dense Alkali Metal Vapors — I. M. Isakov and B. N. Lomakin 745 187

Frequency Stabilization System for Lasers — V. G. Gol'dort and A. É. Om. . . 749 190

Measurement of Infrared Heterodyne Photoreceiver Parameters — P. V. Biryulin 753 193

Operating Modes of an Electrooptical Modulator in Investigations of the Frequency Characteristics of Photoreceivers — P. V. Biryulin . . 756 196

Extension of Dynamic Range of a Photoreceiver Based on a Photodiode — V. A. Druchevskii, A. A. Krasnov, N. V. Malysheva, I. N. Matveev, and B. V. Poletaev 758 198

Chamber for Investigating the Isothermal Compression of Solid Gases in a Wide Range of Pressure and Low Temperatures — A. N. Utyuzh and V. V. Kechin 760 200
Apparatus for Measuring Losses in Combined Superconductors — V. M. Drobin, E. I. D'yachkov, V. A. Malyuk, P. I. Nikitaev, R. Khertsog, F. Khovanets, I. S. Khukhareva, and L. Yanshak 763 203
Automated Device for Semiconductors Diagnostics Using the Helicon uhf Method — A. M. Vitkus, A. K. Laurinavichyus, Yu. K. Pozhela, P.-A. P. Yashinkas 769 208
Bipolar Pulse Generator for Capacitive Spectrometer — V. I. Gubskaya and V. M. Lomako 776 213
Device Measuring Time Constant of Charge Relaxation for Capacitive Spectrometer — P. V. Kuchinskii, V. M. Lomako, and A. P. Petrunin . . . 777 215
Effect of Microdefects on the Characteristics of Si(Li) X-Ray Detectors — V. P. Gimanov, D. A. Goganov, V. A. Kostin, N. E. Mazurik, S. R. Novikov, A. K. Pustovoit, N. Ya. Sedov, Z. F. Smirnova, and L. A. Kholodova 779 217
Device for Identifying X-Ray Quanta Backscattered at the Boundary of Separation of Two Media — F. L. Gerchikov and V. D. Kosarev 782 219
Field Desorption Microscope — N. V. Nikonenkov, V. P. Khlyntsev, and L. P. Potapov 784 221
Attachment to ÉMV-100L Electron Microscope for Irradiation by Ions — V. F. Zelenskii, I. M. Neklyudov, V. F. Rybalko, V. I. Bendikov, S. M. Khazan, and O. Ya. Tal'yanskaya 787 224
Method for Studying Radiation Blistering in Autoionization Microscopes — Zh. I. Dranova, I. M. Mikhailovskii, and A. L. Suvorov 788 225
Device for Automatic Measurement of Half-Decay Time of a Voltage — L. G. Kulemin, G. E. Leont'ev, and S. I. Tamoshyunas 792 228

LABORATORY TECHNIQUES
Radio Engineering Thermostat for Objects with a Large Heat Capacity — S. N. Garyaev, V. N. Kravtsov, and E. A. Chemes 794 230
Multichannel Electrical Lead into a High-Pressure Chamber — M. L. Shubnikov. 796 232
Inductionless Carbon Graphite Shunt — V. I. Bayunov and V. P. Belosheev . . . 798 233
Production of Semiconductor Specimens Transparent to Electrons — V. N. Shabanov, V. G. Shengurov, and N. V. Gudkova 799 234
Mercury Membrane Separator for Measuring Pressures of up to 1 kbar — A. I. Porkhun and L. D. Porkhun 800 236
Field Emission Electron Source Made from Carbon Filaments — A. S. Fialkov, N. I. Osipov, I. F. Anaskin, and N. D. Kuprikova 802 238
Controllable Semiautomatic Clutch — V. D. Yushin, A. N. Logvinov, and L. A. Chempinskii 804 239
Measurement of Thermally Stimulated Changes of Contact Potential Difference — V. S. Lysenko and V. I. Turchanikov 805 240
Cell for Infrared Spectroscopy of Molten Salts — I. É. Veneraki, O. E. Khlebnikov, and V. I. Deshko 809 244
Shock Tube for Calibration of Pressure Detectors — G. A. Makarevich and G. S. Lisenkova 811 245

Volume 23, Number 4, Part 1 July-August, 1980

Methods of Inhibiting Noise in Analog Measuring Systems — M. V. Gal'perin and O. Sh. Pkhakadze 813 7

NUCLEAR EXPERIMENTAL TECHNIQUES
A 200-keV Heavy Ion Accelerator for Work in Solid State Physics — A. M. Markus, V. F. Udovenko, M. V. Zinov'ev, V. A. Rykov, and V. I. Momot 829 22
Determination of Beam Profile in Accelerator by Acoustic Dosimetry — Yu. V. Batygin, V. D. Volovik, S. I. Ivanov, S. P. Karasev, and L. A. Makhnenko 832 24
Apparatus for Collecting and Transporting Nuclear Reaction Products by Means of a Laminar Gas Flow — Yu. P. Gangrskii and L. V. Mikhailov 834 26

	Engl.	Russ.
Organization of Experiments on Storage of Ultracold Neutrons and Analysis of the Results — V. I. Morozov and G. I. Terekhov	837	29
Measurement of Perturbed Angular Correlation with Single-Crystal Gamma Spectrometer — V. A. Klyucharev	842	33
Experimental Method of Introducing Correction for γ-Ray Self-Absorption in a Specimen — E. K. Kirilenko, V. K. Maidanyuk, Yu. I. Prokopchuk, and S. P. Sit'ko	845	36
System of Drift Chambers of FODS Spectrometer — A. V. Alekseev, B. Yu. Baldin, S. I. Bityukov, Yu. B. Bushnin, V. Yu. Glebov, A. F. Dunaitsev, A. K. Konoplyannikov, V. I. Kryshkin, N. Yu. Kul'man, G. I. Lanshchikov, V. K. Myalitsin, V. G. Rybakov, R. M. Sulyaev, A. N. Sytin, and L. K. Turchanovich	847	38
Effect of Radiation Load on Operation of Proportional Chamber — G. D. Alekseev, N. A. Kalinina, V. V. Karpukhin, V. V. Kruglov, and D. M. Khazins	854	45
Load Dependence of Dead Time of Halide Geiger Counters — A. M. Onishchenko and A. A. Tsvetkov	857	48
System for Measuring the Flight Time of Particles on a Scintillation Telescope — Yu. V. Malovichko and V. I. Stepanov	859	50
Hodoscope Photomultiplier Operated as a Signal Accumulator — V. G. Vasil'chenko, N. K. Vishnevskii, V. G. Lapshin, N. S. Mel'nikov, E. A. Monich, V. I. Rykalin, V. K. Semenov, and V. N. Peleshko	863	54
Results of Testing Rectangular NaI(Tl) Crystal Counters — M. D. Minakov, S. I. Serednyakov, Yu. M. Karpov, and Yu. P. Pavlov	868	58
Proportional Resonance Detector for Mössbauer Studies on ^{119}Sn — A. K. Avenirov, S. I. Bondarevskii, V. V. Eremin, S. M. Irkaev, and M. M. Sokolov	870	60
Dosimetric Devices Based on Photocell Diodes and Luminophors — Yu. A. Kuznetsov and A. V. Sidorenko	872	62
Method of Identifying Low-Energy Ions from Their Masses with the Aid of Computer — A. T. Rudchik, O. Yu. Goryunov, V. N. Dobrikov, O. F. Nemets, V. T. Kotlyarov, and P. N. Svetlichnyi	875	65
EXPERIMENTAL APPLICATIONS OF COMPUTER ENGINEERING		
Structure and Basic Working Regimes of a System for Processing Film Information (SOFI) — V. V. Zhurkin, V. E. Krupnov, A. V. Lisovskii, V. I. Lyulevich, V. A. Matveev, V. M. Polikarpov, D. A. Tolkachev, and O. P. Fedotov	880	70
Hardware Programmed Filtration of Pictures from a Hydrogen Chamber in a Regime of Minimal Target Designation — B. S. Volkov, L. V. Ivanov, V. E. Krupnov, V. A. Matveev, V. M. Polikarpov, D. A. Tolkachev, O. P. Fedotov, and S. G. Khlopov	883	73
Graphical Output Device for the "Nairi-K" Computer — A. P. Zakharnev, P. P. Ivanov, and A. Ya. Chukhnin	885	75
ELECTRONICS AND RADIO ENGINEERING		
Equipment for Controlling a Four-Telescope Semiconductor Spectrometer — L. V. Krasnov and I. G. Yatsyshin	888	78
Binary Reversible Counter with Difference-Type Control Elements — B. N. Gorbunov and R. A. Nikitin	891	81
Economical Integrating Current–Frequency Convertor — G. R. Gromov	893	83
Voltage–Frequency Measuring Converter — L. B. Mashkinov and L. N. Gal'perin	895	85
Frequency–Voltage Converter — A. M. Bunyak, V. P. Koval'chuk, and A. N. Lupenko	897	87
Discharger with High Pulse-Repetition Frequency — D. D. Malyuta and V. S. Mezhevov	900	89
Current Breaker with Electric Exploder Drive — V. G. Belan and S. T. Durmanov	901	91
Laser Ignition of the Water Discharger for the Twin Pulse-Forming Line of an Electron Accelerator — B. A. Demidov, M. V. Ivkin and V. A. Petrov	904	93
Wide-Band Pulse Power Amplifiers Based on MIS Transistors — V. P. D'yakonov	907	96

Recirculators Based on High-Frequency MIS Power Transistors — V. P. D'yakonov 910 99
Nanosecond Rectangular Pulse Generators Using Avalanche and MIS Transistors — V. P. D'yakonov 913 101
Bipolar Pulse Shaper-Amplifier — M. V. Melen' and V. I. Shklyarskii 915 103
Monostable Multivibrator with a Wide Range of Pulse Duration Control — E. I. Ponkratov and G. D. Fesivskii 916 104
Sampling Differentiating Converter — V. D. Mel'nikov and B. N. Sevast'yanov 918 106
Picosecond Pulse Shaper Using a Gunn Diode — G. I. Aizenshtat and V. N. Dontsov 921 109
Conversion of Statistically Distributed Signals into Pulses of Stable Duration — G. P. Tsapko, A. V. Pokrovskii, and Yu. K. Toushkanov . . . 923 111
Fast Comparator with a Flip-Flop Stage — K. N. Bakinovskii and L. S. Shchors 925 113
Comparator with Automatic Offset Correction — A. V. Zhukov and V. N. Makhov 928 116
Pulse Phase Detector for Frequency Synthesizers — M. I. Drugov, V. L. Karyakin, M. Yu. Solov'ev, and N. N. Stepanov 930 118
Composite Operational Amplifier — V. V. Ivanov and V. V. Marchenko 932 120

Volume 23, Number 4, Part 2 July-August, 1980

ELECTRONICS AND RADIO ENGINEERING
Pulse Generators with Low Supply Voltages — E. P. Maksimchuk 935 122
Logarithmic Current and Voltage Amplifier Based on an F116 dc Meter — A. B. Ormont 938 125
Circuit for Amplification and Demodulation of Radiometer Output Signals — V. A. Afanas'ev, V. F. Grebennikov, L. N. Ivanova, V. V. Kalugin, V. I. Lachugin, V. A. Ovcherenko, and V. I. Sobolev 939 126
Synchronous Integrator — V. V. Brailovskii, O. P. Zhuk, and A. R. Shelyag . 942 129
Detection Unit with Correlation Charge-Sensitive Preamplifier — V. N. Pod"yachev 944 131
Attachment to a Stroboscopic Oscillograph for Suppressing Drift and Noise — A. Yu. Dargis and Yu. P. Kundrotas 947 134
Equidensity Technique for Measurement of the Characteristics of Infrared and Microwave Field Distributions — E. A. Vinogradov, V. I. Golovanov, and N. A. Prisova 951 137
Choice of the Optimum Method of Supplying a Transformer dc Pick-Up — B. D. Omel'chenko and V. P. Savaneev 954 140
Hall-Probe Sinusoidal-Current Stabilizer — V. D. Sirotov 956 142
Control of Thyristor ac Switches — S. S. Rochev 957 143
Logic-Signal-Controlled Power Switches for Contactless Commutation of Industrial Line Voltage — G. A. Onanyan 959 145
Voltage Regulator with Relative Instability of 10^{-6} — V. M. Pudalov 961 146
Precision Voltage Regulator — V. G. Galalu, S. V. Nikulin, and A. V. Rykov 966 151
Stabilized High-Voltage Power Supply for a Photomultiplier — K. P. Kureichik and S. A. Zaikin 967 152
Power Supplies for Apparatus Subjected to a High Voltage — A. N. Bryukhanov, A. G. Volkovich, S. T. Latushkin, V. G. Mikhailov, V. A. Rezvov, and L. I. Yudin 969 154
Low-Power Stabilizer for ac Amplitude — A. E. Gudilin 972 158

GENERAL EXPERIMENTAL TECHNIQUES
Measurement of the Relative Scattering Cross Section of Fast Electrons by Gas Molecules — V. I. Bazhanov, E. L. Ul'yanova, and N. C. Rambidi . 975 160
Discharge Suppression on Admitting a Gas to a Device at a High Potential — G. V. Karachevtsev and A. Z. Marutkin 977 162
One-Stage Membrane Inlet System for a Mass Spectrometer — M. A. Berezhkovskii, M. I. Korolinskii, L. N. Ozerov, M. A. Pushkina, and M. E. Slutskii 979 164

High-Speed Pulsed Valve Based on a Bimorph Piezoelectric Element — V. N. Garnov, E. A. Maslennikov, V. N. Polkanov, and V. A. Smirnov	981	165
Use of a Three-Electrode Auto-Ion Gun in Field Mass Spectrometry — V. B. Labintsev and N. N. Grishin	984	168
Ion Source for Microquantitative Isotropic Analysis of the Transuranic Elements — V. V. Kalygin, V. Ya. Gabeskiriya, V. I. Raiko, Yu. I. Pimonov, V. S. Prokopenko, and V. M. Prokop'ev	987	171
Signal Amplitude Distribution of Secondary Electron Multipliers When Recording Low-Energy Electrons — I. P. Litvinov, Yu. D. Dekhtyar, G. L. Sagalovich, and A. A. Shevtsov	990	174
Characteristics of a Microchannel Plate Unit in Recording Heavy Particles — M. A. Gruntman and A. P. Kalinin	991	175
Gain of Type VÉH-6 Channel Electron Multipliers as a Function of the Magnetic Field — B. V. Mar'in, V. S. Pokidova, and M. V. Tel'tsov	994	177
Electronic Probe Method of Investigating Magnetic Fields — É. I. Rau, G. V. Spivak, and V. V. Tekin	996	180
Method of Investigating the Heating of Thin Metal Films by an Electron Beam — A. T. Pugachev and Yu. A. Volkov	1002	185
Apparatus to Measure the Frequency Characteristics of Infrared Photodetectors in the 0.03-1-GHz Band — P. V. Biryulin and M. I. Volobuev	1004	186
Laser Ellipsometer for the Investigation of Transient Processes — D. I. Bilenko and B. A. Dvorkin	1005	188
Photoelectric Measurement of Birefringence in a Polarizing Microscope — V. M. Lomako and I. D. Lomako	1008	190
Dissector Follower System for Angular Fluctuation Measurement of an Optical Beam — S. M. Slobodyan, V. N. Galakhov, and V. M. Sazanovich	1010	192
Time Broadening of a Light Signal in Mirror Optical Systems — V. S. Bulygin, Yu. A. Drozhbin, and B. M. Stepanov	1012	194
Setup for the Controllable Growth of Lead Chalcogenide Layers and Their Solid Solutions — T. A. Smorodina and A. P. Tsuranov	1014	196
Photodissociation Laser with Active Medium Circulation — V. E. Sabinin, E. A. Shibalov, E. F. Pevnev, and E. K. Krasil'nikova	1017	199
Coherent Pulse Source at a Wavelength of 118 nm — V. I. Berkov, V. V. Korobkin, Yu. V. Korobkin, A. S. Markin, A. V. Prokhindeev, and V. B. Studenov	1019	200
Coordinate Gas Detector of Ultraviolet and X-Ray Photons with an hf Field — V. D. Peskov	1021	203
Spark Counters for Vacuum Ultraviolet and X-Ray Photons — V. D. Peskov	1025	206
Use of Crystals of Alkali Metal Biphthalates and Bismuth Titanium Oxide Crystals for Registration of X-Ray Plasma Emission Spectra — M. L. Barsukova, G. S. Belikova, L. M. Belyaev, V. A. Boiko, A. B. Gil'varg, S. A. Pikuz, A. Ya. Faenov, and A. Yu Chugunov	1028	209
Nuclear Emulsion to Measure X-Ray Emission Spectra — G. I. Kazarinov, V. V. Kushin, V. K. Lyapidevskii, and I. V. Posysaeva	1030	211
Opticomechanical Aneroid for Determining Energy Balance in a Discharge — V. A. Andrianov, S. V. Pashkin, and P. I. Peretyat'ko	1034	215
Instrument for Measuring the Energy Distribution and Angular Distribution of Electrons — G. G. Managadze and A. D. Maiorov	1038	218
Low-Current Source for the Nondestructive Inspection of Metal—Dielectric—Semiconductor Structures — E. G. Sal'man, V. A. Samoilov, and V. N. Vertoprakhov	1040	220
Automation of Recording of the Dependence of Semiconductor Plate Resistivity on Temperature by the Van der Pauw Method — G. L. Lyakhu, I. P. Molodyan, and G. S. Korotchenkov	1042	222
Apparatus for Measuring Thermally Stimulated Conduction — N. A. Lushnikov and A. G. Zhdan	1044	224
Cryostat for Neutron Diffraction from Specimens under High Pressure — B. A. Vindryaevskii, S. N. Ishmaev, V. D. Podshibyakin, I. P. Sadikov, A. A. Chernyshov, V. A. Sukhoparov, and A. S. Telepnev	1046	225

Engl./Russ.

LABORATORY TECHNIQUES

Aluminum Foil Focusing Coils for Electron-Optical Converters — V. F. Pimenov, V. S. Rylov, and T. A. Skosyrskaya. 1049 228

Method of Increasing the Speed of Response of Cathode-Ray Tube Screens — K. G. Karakozov, A. Z. Mikadze, and V. I. Khvingiya 1050 229

Corrector of the Zero Position of the Balance Beam of a Magnetic Balance — E. M. Agabekyan, S. N. Zelenin, B. I. Il'in, A. F. Radchenko, and A. Ya. Shenfel'd. 1051 230

End Packing of High-Pressure Apparatus — M. L. Shubnikov 1052 231

Laser Cleaning of the Inner Surface of Vacuum-Chamber Windows — G. A. Askar'yan, B. M. Manzon, and I. M. Raevskii 1053 232

Calibration of TSG-2 Germanium Thermometers and Composition Carbon Thermometers Down to 0.5°K — L. P. Mezhov-Deglin, G. A. Kytin, and S. F. Varfolomeev 1054 233

Spectrophotometer Attachment for Measuring the Reflection Coefficient of Mirror Surfaces — M. T. Kostyshin, V. S. Kostko, and V. M. Kosarev. 1056 235

Illuminating Attachment with a Cryostat to Single-Beam Infrared Spectrometers — B. F. Bilen'kii and Yu. V. Danilyuk. 1057 237

Differential Contact Length Gauge — N. M. Mukhtarov and I. K. Rakhimov. . . 1059 237

Volume 23, Number 5, Part 1 September-October, 1980

Gas Detectors with Detection of Discharge Luminescence (Review) — V. A. Monich. 1061 7

NUCLEAR EXPERIMENTAL TECHNIQUES

Device for Extracting and Transporting a High-Current Electron Beam in Longitudinally Inhomogeneous Plasma — A. V. Petrov, A. I. Ryabchikov, A. V. Tuzov, and Yu. P. Usov. 1075 21

Directional Coupler in the Waveguide Channel of a Continuously Operated Microtron — V. A. Slobodyanyuk and V. M. Kondrat'ev 1077 23

Controlling Both the Amplitude and the Phase of the First Harmonic of the Magnetic Field in an Isochronous Cyclotron — A. G. Volkovich, V. D. Dvornikov, S. T. Latushkin, V. A. Rezvov, and L. I. Yudin . . . 1081 26

Small Pulsed Source of Electrons with an Energy of 1-6 MeV — G. V. Erofeeva and V. L. Chakhlov 1084 29

Instrument for the Digital Coding of Current and Voltage Pulses of a High-Current Accelerator of Relativistic Electrons — B. A. Demidov, I. F. Kozlov, and N. A. Klepikov 1086 31

Apparatus for Magnetic Measurements in the Accelerating System of the Prototype of a Collective Heavy-Ion Accelerator — V. M. Lachinov, V. K. Makoveev, and N. V. Klokov. 1089 34

Gas Target for Research on the Formation of Muon–Nucleon Atoms — V. V. Govorov, Yu. P. Dobretsov, B. Zh. Zalikhanov, and A. M. Rogozhin. 1095 40

Broad-Gap Spark Chambers in Memory Operation — O. E. Gorchakov and A. V. Dem'yanov 1098 42

Instrument for Measuring the Tension of the Filament in Multiwire Chambers — F. E. Zyazyulya, S. M. Korenchenko, and K. G. Nekrasov . . 1101 45

Calibration of the Spectrometer Channels of Multidetector Systems — L. V. Krasnov and I. G. Yatsyshin 1106 49

Mössbauer Spectrometer on the Basis of an AI-1024-4 Multichannel Analyzer — V. I. Sinyavskii and S. S. Tsarevskii. 1112 54

Spectra of Recoil Protons in Methane-Filled Proportional Counters — A. N. Davletshin, A. O. Tipunkov, S. V. Tikhonov, and V. A. Tolstikov 1114 56

Plastic Scintillator of Increased Transparency Containing ^{6}Li — V. R. Negina, V. N. Popov, and V. V. Nazarov. 1118 60

Method of Determining the Absolute Sensitivity of Nuclear Emulsions to Proton Beams with an Energy of ∿1 MeV — E. V. Gusev, P. A. Demchenko, I. K. Koval'chuk, N. A. Khizhnyak, and N. G. Shulika 1120 62

EXPERIMENTAL APPLICATIONS OF COMPUTER ENGINEERING
Videotape Recording and Editing of Experimental Data in Automatic Data Acquisition and Processing Systems — Yu. N. Raspopov, I. S. Shevchenko, and S. N. Kovalev 1124 65
General-Purpose Data Input/Output Circuit for 15VSM-5 Control Computers — R. P. Syromyatnikov, L. A. Pigarev, and V. M. Shestakov 1127 68
Preliminary Processing of Experimental Data in AI-4096 Multichannel Analyzer — R. B. Begzhanov and D. A. Gladyshev. 1130 71
Circuits for Generating and Displaying Tags in AI-4096 Analyzers — A. D. Rabinovich, P. N. Glukhov, and V. A. Khudyakov. 1131 72
Interface Cards for Voltmeters and Multimeters for IEC Standard Bus — A. N. Domaratskii, S. N. Domaratskii, N. V. Popenko, and L. S. Sitnikov 1133 74

ELECTRONICS AND RADIO ENGINEERING
Fast Reversible Decade Counter — M. V. Melen'. 1140 80
Plotting Current Complex Spectra in Real Time — A. I. Samoilov and N. A. Chechulina. 1143 83
Wideband Synchronous Detector of Sinusoidal Quadrature Components — O. B. Tarutin 1147 86
Synchronous High-Speed Oscillography of Voltage and Current for Studying the Release of Energy in a Vacuum Spark Discharger — A. V. Grechishnikov, V. I. Derzhiev, V. F. Ivanova, G. I. Ramendik, and Yu. A. Surkov 1149 89
Fifteen-Channel Interval Timer — An Sen Kuk, S. G. Vasiladze, Li Van Sun, Nguen Tkhi Sha, and Pak En Un 1153 92
Nanosecond Time—Amplitude Converter — Yu. K. Akimov and S. I. Merzlyakov . 1155 94
High-Speed Voltage—Frequency Converter — N. P. Beketov, A. M. Glazkov, G. I. Kuznetsov, and G. S. Patanov. 1158 97
Analog Converter for Capacitive Transducers — V. F. Ryadov 1160 99
Divider of Two Voltages with Analog-to-Digital and Digital-to-Analog Converters — V. A. Sinovenko and Yu. N. Turchaninov 1162 101
Method of Measuring the Ratio of the Maximum to Minimum Current in Gunn Diodes — V. V. Kukushkin and B. B. Élenkrig 1164 103
Integrating Electrometer — A. A. Gol'din, E. S. Guzikov, and Yu. A. Isakov 1166 105
Transistor Videoamplifier of Nanosecond Pulses with Increased Output Voltage — B. I. Avdochenko, L. I. Babak, and V. D. Obikhvostov. . . . 1169 107
MOS Transistor Linear Pulsed Amplifiers with Distributed Gain — A. I. Sklyarenko. 1170 109
Improving the Speed of the K140UD1 Operational Amplifier — G. P. Petin, V. N. Rudkovskii, A. V. Makienko, S. V. Khristich, and S. Ya. Ivantsov 1174 113
Amplifier with Automatic Gain Selection — G. Sh. Bikmurzin 1176 114
Tunable ulf Amplifier with Adjustable Amplitude—Phase Characteristic — L. Yu. Shepelevskii and A. S. Yarygin 1177 116
High-Power Magnetothyristor Pulse Generator — P. G. Gordeev, N. P. Polyakov, P. P. Rumantsev, V. V. Sinenko, and Yu. P. Yarushkin. 1179 117
Generator of Short Bipolar Pulses — V. I. Startsev, V. A. Gol'dshtein, and É. L. Kuplennikov 1181 120
Low-Frequency Triangular-Current Generator— L. A. Bulygin and N. F. Gusarova 1182 121
Stabilized rf Generator of Quadrupole Mass Spectrometer — V. N. V'yukhin and E. A. Kovalev 1184 122

Volume 23, Number 5, Part 2 September-October, 1980

ELECTRONICS AND RADIO ENGINEERING
Method of Stabilizing the Frequency of Klystron Microwave Oscillators — V. I. Panov. 1187 124
Controlled Megavolt Gas-Filled Discharger — V. M. Evdokimovich, S. B. Evlampiev, G. S. Korshunov, V. A. Nikolaev, Yu. F. Sviridov, and V. V. Khmyrov. 1190 127

Precision Peaking Discharger with a Nonlinear Element in an Inductive Storage Circuit with Foil Breaker — A. V. Grigor'ev, A. G. Novikov, V. V. Titkov, and G. A. Shneerson. 1193 129
Thyristor Discharger in a Pulsed Magnetic Field Generator — D. V. Mashovets, D. V. Shamshur, and M. A. Shakhov 1195 130
Investigating a Nonlinear Multichannel Peaking Line — V. A. Shvets. . . . 1197 132
Thyristor Pumping Current Pulse Generator for a Semiconductor Laser — V. V. Belyaev, I. M. Divil'kovskii, Yu. N. Kal'chenko, and A. A. Matsveiko. 1200 135
Highly Sensitive Shapers of Photomultiplier Signals — B. Yu. Baldin . . . 1202 137
Switch for Controlling Electrooptical Devices — R. E. Pyatetskii and V. B. Gurskii. 1208 141
Broadband rf Pumping System for an Electron Nuclear Double-Resonance Spectrometer — Yu. A. Sherstkov, A. I. Rokeakh, and N. V. Legkikh. . 1210 144
Wide-Range Fourier Spectrometer to Study the NMR of Rare Isotopes in Crystals — A. G. Lundin, S. P. Prozorov, and A. A. Sukhovskii . . 1212 145
High-Resolution Relaxometer for Relaxation-Time Measurements of Individual Lines in the NMR Spectrum — R. Kh. Sadykov, A. I. Khayarov, and Yu. Yu. Samitov. 1251 148
Automation of Measurements in Pulsed NMR Experiments — A. N. Temnikov and V. D. Fedotov. 1218 151
High-Temperature Detector for a Pulsed NMR Spectrometer — F. F. Gubaidullin, A. N. Gil'manov, and E. E. Savin. 1223 155
Generator for Calibrating Superconducting Solenoids by the Nuclear Magnetic Resonance Method — O. A. Voronov and V. G. Filippov 1225 157
Simple TTL Integrated Circuit Testers — I. P. Skoletskii. 1228 160
Regulated High-Voltage Power Supplies — V. N. Murugov, G. P. Okutin, V. I. Pankratov, and A. V. Senik 1232 164

GENERAL EXPERIMENTAL TECHNIQUES

Analysis of Evaporation of Composite Semiconductors with the MI1201 Mass Spectrometer — I. P. Sharkan', S. V. Mikulaninets, N. I. Dovgoshei, and Yu. Yu. Firtsak. 1235 166
Recording Ion Currents in the MKh1304 Mass Spectrometer with VÉU-6 Channel Electron Multiplier — A. I. Kuz'michev, I. L. Agafonov, and S. I. Kuz'michev 1236 167
Selector and Control Circuit of Multichannel Recording System for Kinetic Mass Spectrometry — B. G. Mishchenko, A. A. Sysoev, S. K. Timokhov, R. S. Khafizov, and S. A. Shobotenko 1238 169
Ion Count Rate Meter — Yu. N. Antonov, E. N. Moos, and G. D. Parshin. . . 1241 172
Radioisotopic Ionization Pressure Gauge for the $650-1.7\cdot10^{5}$ Pa Range — V. N. Barkovskii, A. A. Vydrik, and V. G. Mikutskii. 1242 173
Positive Thermionic Emission of High-Melting Metals — N. P. Katrich and V. N. Kanishchev 1245 176
System for Measuring Electron Temperature of Stellarator-2 Plasma by Thomson Scattering of Neodymium Laser Second Harmonic — M. A. Blokh. 1248 179
One-Electron Characteristics of FÉU-119 Photomultiplier — S. S. Vetokhin, I. R. Gulakov, and Yu. V. Pislyak. 1251 182
One-Electron Pulse Selector Circuit for Photon Counting Systems — Ya. É. Tiberg and V. N. Paulauskas 1252 183
Protecting the FEU-46B Photomultiplier from the Effect of the Terrestrial Magnetic Field — V. V. Georgiev and V. A. Gladyshev. 1255 186
Automatic Spectrophotometer with Punched Tape Output — U. Kh. Nymm, L. O. Neiman, and A. K. Tiirik 1257 187
Automatic Plotting of Spectral-Line Contours — A. P. Krumin', S. Ya. Liepa, and U. V. Yanson 1260 190
Synchronizer for Discrete Recording of Spectra — Yu. V. Ulashkevich and I. V. Tselinskii 1261 192
Frequency-Characteristic Meter for Optical Photodetector — S. A. Gonchukov, E. P. Emets, R. D. Kasumova, and E. D. Protsenko. . 1263 194
High-Sensitivity Circular Polarization Analyzer — V. D. Kul'kov and V. K. Kalevich 1265 196
Time-Gain Control of Optical Receiver of Laser Rangefinder — G. I. Il'in, A. N. Pikulev, and Yu. E. Pol'skii 1268 199

Highly Stable Long-Lasting HCN Laser — N. I. Malykh, A. G. Nagornyi, and E. S. Yampol'skii. 1271 200
Continuous Regulation of Pumping Energy in Laser Power Systems — V. V. Valyavko, B. V. Krylov, and A. A. Mozgo. 1274 203
Determination of Direction of Laser Beam by Measuring Polarization of Reflected Beam — M. I. Lobachev, É. M. Rabinovich, and V. V. Tuchin. 1276 205
Radio Pulse Generator for Lasers with High-Frequency Transverse Discharge — V. S. Mikhalevskii, G. N. Tolmachev, and V. Ya. Khasilev 1279 207
Results of Tests of the "Giperon" Superconducting Magnet — I. A. Vetlitskii, A. V. Belonogov, V. A. Glukhikh, N. I. Doinikov, V. M. Dobrov, E. I. Emel'yanov, V. L. Krylov, A. A. Lebedev, A. V. Lebedev, G. S. Lomkatsi, I. P. Marevichev, N.A. Monoszon, Yu. N. Ostroumov, Yu. I. Povarov, O. I. Pogorelko, L. I. Popkov, I. I. Sabanskii, G. V. Sidorovich, V. T. Smolyankin, D. D. Tokarev, V. D. Fedorov, I. V. Chuvilo, and G. F. Churakov. 1281 209
Magnet for a Portable NMR Spectrometer — B. E. Rytsar and P. M. Soprunyuk . 1285 212
Equipment for Investigating Solid Surfaces by Energy Analysis of Secondary and Scattered Ions — Yu. G. Skripka, V. S. Vas'ko, and A. N. Grishin. . 1287 213
Equipment for Measuring Thermally Modulated Spectra of Metals and Alloys — A. I. Golovashkin and A. L. Shelekhov 1289 216
Instrument for Static and Dynamic Loading of Specimens — V. P. Savchin and I. M. Spitkovskii. 1292 218
Measurement of Dielectric Permeability in a Waveguide Interferometer — D. G. Mamedov. 1293 219
Pulsed Generator of Monochromatic X Rays — K. A. Zheltov, V. I. Matakov, and A. N. Petrenko 1296 221
Instrument for Measuring Dependence of Intensity of X Rays on Angle of Incidence of Electrons on the Specimen — L. V. Kazakov and G. B. Édel'shtein. 1299 224

LABORATORY TECHNIQUES
Illuminator for Pumping a Cooled Crystal — M. A. Dubinskii and B. N. Kazakov. 1301 225
Attachment to Vacuum System for Depositing Coatings on Strip — A. V. Amosov, Yu. A. Zibuts, L. A. Matvienko, and Yu.-A. A. Lyubinavichyus 1302 226
Device for Measuring Optical Characteristics of Liquids at High Temperatures — V. D. Golyshev, V. A. Petrov, and Yu. M. Putilin. . . . 1303 227
Working Characteristics of F-7 Photocells — L. N. Shcherbakov 1305 229
Controllable Batching Valve — I. I. Chemeris, V. F. Shkurdoda, and N. I. Korotkoruchko. 1307 231
Cell for Reducing Thickness of Silicon Chips — R. S. Nakhmanson and L. K. Popov. 1311 234
Setup for Obtaining Tin Dioxide Films — L. V. Astaf'eva and G. P. Skornyakov 1313 235
Helium Cryostat for Continuous Maintenance of Temperatures Below 4.2°K — Ya. S. Kan and V. A. Frolov. 1315 237
Cryostat for Deforming Crystals on Regel'—Dubov Relaxometer — B. P. Koman and Z. L. Shevkis. 1317 239
Cryogenic Resistance Thermometer Based on Cu+Ni+Fe+Mn Alloy — V. A. Cherenkov and V. M. Beilin 1319 241

Volume 23, Number 6, Part 1 November-December, 1980

Development of a Filmless Television Method for Measuring the Coordinates of Fast Processes (Review) — A. V. Petrakov 1321 5

NUCLEAR EXPERIMENTAL TECHNIQUES
Digital-to-Analog Converter for the Control System of Betatron Energy — S. N. Belyaev, A. B. Kozin, V. A. Semenov, and A. A. Nechkin 1335 18
Ion Source with Increased Temporal Stability for Cyclotrons — E. M. Bel'skii, G. A. Kosinov, I. G. Lagutin, O. F. Nemets, L. I. Romanyuk, N. E. Svavil'nyi, V. M. Slobodyan, and V. V. Ustalov 1336 19

Physical Characteristics of a Tritium Gas Target as a Source of Monoenergetic Neutrons — N. I. Fetisov, S. P. Simakov, A. M. Trufanov, O. A. Sal'nikov, and G. N. Lovchikova 1340 22
Express Technique of Determining the Tritium Concentration in Tritium Targets — V. I. Galkov, P. S. Otstavnov, I. G. Sheinker, and D. L. Shpak 1343 25
Measurements of the Electron Energy in the Presence of a Hadron Background with a Lead–Glass Cherenkov Gamma Spectrometer — E. Knappik, V. A. Kramarenko, A. I. Malakhov, and G. L. Melkumov 1344 26
Method of Measuring Photoproton Spectra with Suppression of the Electron Background — V. V. Varlamov, I. M. Kapitonov, V. I. Shvedunov, and A. V. Shumakov 1347 30
Scintillator–Photodetector Detection System with Improved Energy Resolution — F. U. Kugatova, R. A. Muminov, and A. Ya. Yafasov 1350 32
Instrument for Measuring the Deexcitation of Thermoluminescence Dosimeters — B. S. Prister and G. P. Shein 1352 35
Possible Use of $BaSO_4$(Eu) as a Detector in Thermoluminescence Dosimeters — I. A. Bochvar and M. I. Tombak 1354 37
Sensitivity of the FÉU-49 Photomultiplier to Cherenkov Radiation — V. L. Dadykin and A. L. Tsyabuk 1359 41
Units for Measuring the Lifetime of Positrons and Positronium in Condensed Media — V. N. Belyaev, V. Yu. Kovalen', V. I. Razov, E. V. Sobolev, and Yu. V. Shtotskin 1362 44

EXPERIMENTAL APPLICATIONS OF COMPUTER ENGINEERING

CAMAC Control System Using a Microcomputer Controller — V. T. Sidorov, A. N. Sinaev, and I. N. Churin 1367 48
Interface Bus Cable — S. O. Mkrtchyan and R. R. Edilyan 1374 55

ELECTRONICS AND RADIO ENGINEERING

Multichannel Parallel Correlometer with Fast Serial Readout — L. G. Goverdovskaya, L. A. Reshetov, S. P. Serkov, and A. G. Strochilov 1376 57
Digital Counter Decades with Operational and Long-Term Memory — A. M. Izmailov, G. S. Ter-Israelov, and R. A. Babayan 1378 59
Probabilistic Voltage-to-Code Converter — A. N. Gavrilov, Yu. M. Korshunov, and A. V. Simkin 1380 61
Phase-to-Voltage Converter Using Combinational Logic — V. V. Khilil' 1382 63
General-Purpose Integrated-Circuit Digital Regulator — V. G. Romanov and S. L. Sklyarenko 1384 65
Analog Processing Unit for Spectrometric Data from Semiconductor Detectors — O. V. Ignat'ev, A. I. Kosse, and N. F. Shkola 1386 68
Wide-Band Quadrature Device — A. G. Kopanev, V. M. Sapel'nikov, A. M. Muftakhov, and G. I. Zhuravlev 1389 71
Frequency-Matching Unit — R. M. Gaiduchok, S. M. Il'kiv, and N. V. Kirianaki 1391 73
Logarithmic Picoammeter — M. N. Drazhev and A. G. Kebedzhiev 1395 76
Linear Infralow-Frequency Rectifier with Low Ripple Factor — L. Yu. Shepelevskii and A. S. Yarygin 1397 79
Device for Checking and Measuring Parameters of Circular Scanning of Electron Beam in LI605-1 Dissector — V. A. Larionov 1398 80
Precision Light Beam Oscilloscope Time Marker Generator — V. Y. Yakovlev . . . 1401 82
Wideband Differential Amplifier — G. Sh. Bikmurzin 1402 83
Transistor Amplifier with Bandwidth of 0.1-450 MHz — M. V. Ten 1404 85
High-Power High-Voltage Pulses Generator for an Electron Accelerator — L. A. Zubkov, A. M. Maine, V. A. Papadichev, and S. G. Rott 1407 88
Test Pulse Generator for Measurement of Power Transistor Time Parameters — Z. A. Fisher, A. S. Miroshnichenko, S. N. Shepelenko, and I. I. Lemekhova 1410 91
Adjustable Rectangular Pulse Generator Using a Semiconductor Pentode — I. I. Obod. 1413 94
High-Frequency Sawtooth Generator — V. A. Chulkov 1415 96
Adjustable Timing Generator — V. S. Zhigalov 1417 97

Charger for a 1.2-MJ Capacitive Energy Store — P. G. Alimov, V. I. Koshevel, K. N. Sukushin, and M. N. Timofeev 1418 99

Volume 23, Number 6, Part 2 November-December, 1980

High-Speed Pulse Distributor — G. P. Feofilov, and S. A. Kozlov 1421 101
Pulse Duration Discriminator — L. F. Kosakovskii. 1423 102
Efficient High-Voltage, High-Speed Transistor Switch — S. S. Babich, A. V. Belov, and A. F. Babkin. 1425 104
High-Speed Switch for hf Signals using FETs — A. I. Lavrushev and A. N. Sobolev. 1427 106
High-Speed Fluid Switching Device with an Induction-Dynamic Drive — V. N. Bondaletov and V. E. Lapshin 1429 107
Control Unit for Magnetic Field of Electron Paramagnetic Resonance Spectrometer — V. I. Aleksandrovskii, V. N. Linev, and V. V. Lisovskii . . 1432 110
Transmitter of Small EPR Radio Spectrometer — B. E. Kulikovskii, V. H. Linev, and E. Ya. Fursa 1436 114
High-Voltage Supply System for Wide-Gap Spark Chambers — S. M. Rozhdestvenskii and B. A. Khrenov 1439 116
Type K169AA1 Microcircuit in High-Voltage Supplies — G. A. Aver'yanov . . . 1442 119
Power Supply for a Plasma Emitter — N. N. Koval' and M. B. Nigof 1444 121

GENERAL EXPERIMENTAL TECHNIQUES

Flow-Speed Measurement for a Plasma from an Arc Plasmotron — A. I. Chmil' and E. G. Shustin 1447 124
High-Vacuum Plasma Pump — A. M. Dorodnov, V. E. Minaichev, and S. I. Miroshkin. 1449 126
Detection of Accelerated Metal Particles by a Channel Multiplier — A. I. Akishin, V. P. Kiryukhin, B. V. Mar'in, and L. S. Novikov. . . 1453 129
Nanosecond Pulse Control of an FÉU-30 — N. N. Beglyakov, V. K. Lyapidevskii, V. A. Prorvich, and A. N. Furazhkin. 1455 131
Photomultiplier Selection for Ultraweak Chemiluminescence — Yu. L. Zherebin and V. M. Sava 1457 133
Hall Magnetometers for Stationary Magnetic Fields that Read in Field Units — V. M. Lachinov, V. K. Makoveev, and A. M. Starikov 1460 135
Spectrometer with a Two-Pass Fabry–Perot Interferometer and Photoelectric Digital Spectral Resolution — S. V. Krivokhizha, O. A. Niyazov, and E. V. Shvets 1463 137
Modified VMR-2 Vacuum Monochromator for Synchrotron Radiation Experiments — A. V. Kozhevnikov and N. A. Timchenko. 1466 140
Device for Controlling a Multicascade Electrooptical Light Deflector — B. M. Yurchikov, V. Ya. Goverdovskii, and V. B. Fedorov. 1468 142
Extended Preionizing UV Source for Pulsed Gas Lasers — A. K. Zhigalkin and Yu. L. Sidorov 1473 146
Setup for Measuring Optical Properties of Active Media during Pulsed Pumping — V. A. Sterligov and V. B. Bortsov 1476 148
Stabilized HCN Laser with hf Pumping — A. N. Topkov, V. A. Svich and N. G. Pokormyakho. 1479 152
Determination of the Acoustic Parameters of Crystals by an Optical Heterodyning Method — B. A. Strukov, T. P. Spiridonov, and K. A. Minaeva . . 1482 154
Laser Doppler Velocimeter Based on an Electron-Optical Converter and Photomultiplier — G. I. Aponin, A. A. Beshaposhnikov, and O. B. Bragina . . 1485 156
Laser Instrument for Measuring the Amplitude of Oscillations of Electromechanical Transducers — I. P. Golyamina, G. L. Kiselev, A. M. Lachugin, and V. K. Chulkova 1490 161
Determination of the Thermal Operating Parameters of the Active Element of an Yttrium-Aluminum Garnet Laser — K. N. Evtyukhov, B. Zborzhil, and L. N. Kaptsov. 1494 164
Field-Ion Microscope with Accelerated-Ion Source — Zh. I. Dranova, V. A. Ksenofontov, V. B. Kul'ko, I. M. Mikhailovskii, and E. V. Sadanov. 1497 166
Correlation Diffraction Patterns — A Means of Determining Electron Microscope Resolution — I. F. Anaskin, E. V. Ageev, and P. A. Stoyanov 1500 168

Obtaining Electron Diffraction Patterns at Low Vapor Pressures of the Substance Studied — A. A. Ivanov and E. Z. Zasorin 1503 170
Shaping of Isotropic Radiation Flux of X-Ray Generators — F. L. Gerchikov, I. D. Ivanov, I. P. Karpinskii, N. K. Sipyagina, and A. G. Khryapin 1506 172
Measurement of Charge of Interface in Homogeneous and Heterogeneous Junctions — V. I. Polyakov, P. I. Perov, and L. A. Avdeeva 1508 174
Self-Excited Oscillator for the Contactless Investigation of Sound Attenuation and Dispersion in Metals — A. N. Vasil'ev, Yu. P. Gaidukov, and A. P. Perov 1511 176

LABORATORY TECHNIQUES
Control of a PL-150 Tape Punch with a BZ-17-3A Punch Unit — I. I. Gainish, M. V. Goshovskii, and A. A. Teke 1514 179
Dynamic-Display Device for Seven-Segment Indicators — A. I. Ermishev, A. M. Khakimov, and F. F. Bagautdinov 1515 180
MIM System for Cathode Emission Current Control — V. I. Bashkirov, V. I. Khatnikov, and Yu. B. Yankelevich 1517 181
Production of Free Thin Films of W, Ti, Fe, and Fe–Co Alloys — N. V. Borovikova, V. V. Deriglazov, A. I. Egorov, R. I. Krutova, B. G. Peskova, G. N. Popova, L. A. Vaishnene, and A. K. Petukhov 1519 182
Apparatus for Depositing Organic Films from the Vapor State in Response to UV Light — G. M. Gusakov, Yu. S. Bokov, V. P. Lavrishchev, L. I. Livshin, and V. N. Nosov 1521 184
Joint between Artificial Sapphire and Metal — I. Ya. Dekhtyar, L. F. Dubikovskii, V. I. Silant'ev, and N. V. Sukhoruchkin 1523 186
Sputtering of Niobium and Niobium Oxides in a Low-Power hf Discharge — N. A. Tsurikov, N. M. Loboda, and S. I. Bondarenko 1525 187
Efficient Air-Cooling Method Based on a Porous Body — V. P. Kirillov, V. V. Mozhaev, V. E. Skorovarov, and A. A. Sheronov 1527 188
Chamber for High-Pressure Ultrasonic Investigations of Liquids — Sh. Kh. Ikramov, T. Sh. Akhmedov, I. B. Shin, and F. F. Voronov . . . 1529 190
Resistance Thermometer with a Copper–Nickel Base — V. A. Cherenkov 1531 191
Optron Pair at Cryogenic Temperatures — L. A. Mikheenko and V. P. Sherbatskii 1532 192
Stabilizer for Low and Infralow Temperatures — V. I. Voronin 1533 193
Automatic Level Regulator for Liquid Nitrogen —V. I. Piskarev 1535 195